

## Method for intelligent data communication

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### Abstract of TW388015

The present invention discloses an intelligent data communications system mainly comprising a base and a portable electronic notepad capable of being coupled to or detached from the base. The base comprises a buffer, a first storage device, and a dialing module. The buffer is used for storing the caller identification display information transmitted from the public switch telephone network. The first storage device is used for storing the information coming from the portable electronic notepad. The dialing module is used for the automatic dial-up through the public switch telephone network. The portable electronic notepad comprises a data processing module, a second storage device and a display device. The data processing module is used for processing the data coming from the buffer. The second storage device is used for storing the data coming from the data processing module and transmitting the stored data to the first storage device or receiving the stored data from the first storage device. In addition, the second storage device can also send its stored data to the dialing module the automatic dial-up. The display device is used for displaying the data coming from the data processing module.

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## Device and method for intelligent data communication

### ABSTRACT

5 The present invention discloses an intelligent data communication system, which comprises a base, and a portable electronic notebook, which can be coupled with or separated from the base. The base includes a buffer, a first storage device, a dialing module, wherein the buffer is used to store the caller identification display data sent from the public telephone switching network; the first storage device is used to store the information from the portable electronic  
10 notebook; the dialing module is used to automatically dial out by the public telephone switching network. The electronic notebook includes a data processing module, a second storage device, and a display device; wherein the data processing module is used to process the information sent from the buffer; the second storage device is used to store the information sent from the data  
15 processing module, and transmit the stored information to the first storage device or receive the stored information from the first storage device. Furthermore, the second storage device can also transmit the stored information to the dialing module for automatically dialing out. The display device is used to display the information sent from the data processing module.

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## FIELD OF THE INVENTION

The present invention relates to a device and method for data communication, and particularly to a device and method for intelligent data communication.

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## PRIOR ART

Recently, the technologies for electronics, computers and communication are advancing rapidly, and the 3C (computer, communication, consumer) era has come. In the 3C era, some devices, such as telephone, computer,  
10 personal data assistant (PDA), all provide the functions for automatically establishing the telephone book information. The conventional telephone device having the caller identification display function is only to increase the caller identification function on the normal telephone set. The device includes a liquid crystal display (LCD) to provide the display function, a connection device  
15 for connecting to the public telephone switching network, a platform having multiple buttons for operating the device on storing or processing on the information. Because the device has to be connected to the public telephone switching network, and only stores the caller identification display information in the device, the user cannot carry the device with himself, and further for  
20 processing the caller identification display information.

FIG. 1 is a diagram for a conventional personal digital assistant having caller identification display function. As shown in FIG. 1, the device includes a personal digital assistant 4 and a base 5; wherein the base 5 has a first connection device 6 for connecting to the public telephone switching network,  
25 and a second connection device 7 for connecting to the personal digital assistant 4. The personal digital assistant 4 includes a liquid crystal display (LCD) 8 for providing the display function; a third connection device 9 for connecting to the second connection device 7 of the base 5; a platform 10 having multiple buttons for operating the device on storing and processing the information. Herein, the  
30 base 5 is only used as a medium of the personal digital assistant 4 for communicating to the outside, and has no other functions. Thus, the personal digital assistant 4 and the base 5 have to be combined during usage to implement the functions of caller identification display, faxing, and automatically dialing. So, once the personal digital assistant 4 and the base 5 are separated,  
35 the base 5 cannot operate alone.

Moreover, these devices having the caller identification display function

further have the following disadvantages:

1. The conventional telephone having the caller identification display function has a display device for displaying the received information on the display device. The method does not provide the privacy, so that anyone can read the caller identification display information. Thus, the security for the subscriber data is not protected.
2. The base does not have the function for the backup of the caller identification display information. Thus, when the caller identification display information in the personal digital assistant is lost, it will be regretful for not saving back.

Therefore, it is necessary to propose a new method to solve the above-mentioned problems.

## SUMMARY OF THE INTRODUCTION

The main object of the present invention is to provide a device and method for intelligent data communication, such that it can solve the problem of the conventional device having the caller identification display function without the backup of the caller identification display information to cause the regret for not saving back when the caller identification display information was lost.

Another object of the present invention is to provide a device and method for intelligent data communication on solving for the conventional device receiving the caller identification display information not implementing the functions of intelligent telephone (such as automatically dialing).

A further object of the present invention is to provide a device and method for intelligent data communication on solving for when the conventional device having caller identification display function is transmitting the caller identification display information, the caller identification display information is transmitted to any electronic notebook, so as to achieve the privacy function.

The present invention discloses an intelligent data communication device, which comprises a base, and a portable electronic notebook, which can be coupled with the base; wherein the base includes a buffer, a first storage device, a dialing module. The buffer is used to store the caller identification display data sent from the public telephone switching network. The first storage device

is used to store the information from the portable electronic notebook. The dialing module is used to automatically dial out by the public telephone switching network. The portable electronic notebook cannot only be coupled with the base to communicate with the base, but also be separated from the base to be carried with the user. The portable electronic notebook includes a data processing module, a second storage device, and a display device; wherein the data processing module is used to process the information sent from the buffer; the second storage device is used to store the information sent from the data processing module, and transmit the stored information to the first storage device or receive the stored information from the first storage device through the data processing module. Furthermore, the second storage device can also transmit the stored information to the dialing module through the data processing module for automatically dialing out. The display device is used to display the information sent from the data processing module.

The present invention also discloses another intelligent data communication device. The device includes: a base, and a portable electronic notebook, which can be coupled with the base; wherein, the base has a display device, and the caller identification display function; and, the portable electronic notebook cannot only be coupled with the base to receive the information in the base, but also can be separated from the base to be carried with the user.

The base includes a telephone line interface to be coupled with the public telephone switching network; a first coupling device to couple with the portable electronic notebook; a caller identification display processing module for processing the caller identification display information sent from the telephone line interface, and communicating with the portable electronic notebook by the first coupling device; a first memory for storing the caller identification display information after processing by the caller identification display processing module; a second memory for storing the messages sent from the portable electronic notebook through the caller identification display processing module, and transmitting messages to the portable electronic notebook module; and, an external device interface for coupling with the external device and communicating with the external device. Herein, the external device at least includes the personal digital assistant or the databank processor.

The portable electronic notebook includes a second coupling device to couple with the first coupling device of the base for communicating messages

with the base; a data input module; a data processing module for processing the messages sent from the data input module, and communicating messages with the base through the second coupling device; a storage device for storing the messages sent from the data processing module and transmitting messages to the second memory in the base through the data processing module, and  
5 conducting the automatic dialing function; a display device for displaying the messages sent from the data processing module.

The present invention discloses a method with an intelligent data communication base for processing the caller identification display information.  
10 The method is described as follows: first, transmitting a caller identification display information to the base; the base will check if the caller identification display information is correct; if not, terminating the method for processing the caller identification display information; if it is correct, storing the caller identification display information in a memory of the base; checking if the  
15 electronic notebook is coupled with the base; if the electronic notebook is not coupled with the base, terminating the method for processing the caller identification display information. If the electronic notebook is coupled with the base, then checking if the identification display of the electronic notebook is accepted by the base; if the identification display of the electronic notebook is  
20 not accepted by the base, terminating the method for processing the caller identification display information; if the identification display of the electronic notebook is accepted by the base, transmitting the caller identification display information to the electronic notebook; then, checking if the caller identification display information is the last identification display information; if the caller  
25 identification display information is the last caller identification display information, terminating the method for processing the caller identification display information; if the caller identification display information is not the last caller identification display information, repeating the above-mentioned steps until the last caller identification display information is transmitted to the base;  
30 finally, terminating the method for processing the caller identification display information.

## BRIEF DESCRIPTIONS OF THE FIGURES

FIG. 1 is a diagram for the device of conventional personal digital assistant  
35 having caller identification display function.

FIG. 2 is a diagram for an intelligent data communication device of an embodiment according to the present invention.

FIG. 3 is a diagram for another intelligent data communication device of an embodiment according to the present invention.

5 FIG. 4 is a flow chart of a method for transmitting the caller identification display information of intelligent data communication according to the present invention.

10 FIG. 5 is a flow chart of a method for the base processing the caller identification display information of intelligent data communication according to the present invention.

## DETAILED DESCRIPTION OF THE INVENTION

FIG. 2 is a diagram of the intelligent data communication device of an embodiment according to the present invention. The device mainly includes: a  
15 base 100, and a portable electronic notebook 200, which can be coupled with the base 100; wherein, the base 100 includes a buffer 102, a first storage device 104, and a dialing module 106. The buffer 102 is used to store the caller identification display information sent from the public telephone switching network. The first storage device 104 is used to store the information from the  
20 portable electronic notebook 200. The dialing module 106 can automatically dial out with the public telephone switching network. The portable electronic notebook 200 cannot only be coupled with the base 100 for communicating with the base 100, but also can be separated from the base 100 to be carried with the user. Herein, the portable electronic notebook 200 at least includes a personal  
25 digital assistant (PDA) or a databank processor. The portable electronic notebook 200 includes a data processing module 204, a second storage device 206, and a display device 202; wherein, the data processing module 204 is used to process the information sent from the buffer 102; the second storage device 206 is used to store the information sent from the data processing module 204,  
30 and transmit the stored information to the first storage device 104 through the data processing module 204, or receive the stored information from the first storage device 104. Moreover, the second storage device 206 can also transmit the stored information to the dialing module 106 through the data processing module 204 for automatically dialing out. The display device 202 is  
35 used to display the information sent from the data processing module 204.

Due to the intelligent data communication device, the caller identification information stored in the base 100 also has a backup in the portable electronic notebook 200. Thus, once the caller identification display information stored in the base 100 is lost, it can use the caller identification information stored in the portable electronic notebook 200 to again copy the caller identification display information to the base 100. Therefore, it can prevent the regret for not saving back when the caller identification display information stored in the base 100 is lost. Moreover, the intelligent data communication device can transmit the information stored in the second storage device 206 to the dialing module 106 through the data processing module 204 for automatically dialling out, so as to solve the problem of conventional device having caller identification display function not realizing the automatically dialling function.

FIG. 3 is a diagram of an intelligent data communication device for another embodiment according to the present invention. The device mainly includes: a base 12 and a portable electronic notebook 10, which can be coupled with the base 12; wherein the base 12 has a display device having the caller identification display function; the portable electronic notebook 10 cannot only be coupled with the base 12 to receive the information in the base 12, but also can be separated from the base 12 to be carried with the user. Herein, the portable electronic notebook 10 at least includes the personal digital assistant (PDA) or a databank processor.

The base 12 includes a telephone line interface 24 for coupling with the public telephone switching network; a first coupling device 22 for coupling with the portable electronic notebook 10; a caller identification display processing module 28 for processing the caller identification display information transmitted from the telephone line interface 24, and communicating messages with the portable electronic notebook 10 through the first coupling device 22; a first memory 25 for storing the caller identification display information after processing by the caller identification display processing module 28; a second memory 27 for storing the messages sent from the portable electronic notebook 10 through the caller identification display processing module 28, and transmitting the messages to the portable electronic notebook module 10; an external device interface 26 for coupling with the external device for communicating messages with the external device. Herein, the external device at least includes a personal digital assistant or a databank processor.



The portable electronic notebook 10 includes a second coupling device 20 for coupling with the first coupling device 22 of the base 12 and communicating messages with the base 12; a data input module 16; a data processing module 15 for processing the messages sent from the data input module 16, and communicating messages with the base 12 through the second coupling device 20; a storage device 17 for storing the messages sent from the data processing module 15, and transmitting messages to the second memory in the base 12 through the data processing module 15, and conducting the automatic dialing function; and, a display device 14 for displaying the messages sent from the data processing module 15.

FIG. 4 is a flow chart of the method for transmitting caller identification display information by intelligent data communication according to the present invention. The process flow is described as follows: first, transmitting a caller identification display information to a portable electronic notebook (step 401); deciding whether to copy the caller identification display information into the telephone book in the portable electronic notebook (step 402); if not copying the caller identification display information into the telephone book in the portable electronic notebook, terminating the process flow (step 407); if copying the caller identification display information into the telephone book, conducting the copying procedure (step 403); deciding whether to edit the caller identification display information (step 404); if editing the caller identification information, conducting the editing procedure (step 405); if not editing the caller identification display information; terminating the process flow (step 407); checking if the caller identification display information is the last caller identification display information (step 406); if the caller identification display information is the last caller identification display information, terminating the process flow (step 407); if the caller identification display information is not the last caller identification display information, repeating the above-mentioned steps until the last caller identification display information is transmitted to the portable electronic notebook; finally, terminating the process flow (step 407).

FIG. 5 is a flow chart for the method of processing the caller identification display information by an intelligent data communication base according to the present invention. The process flow is described as follows: first, transmitting a caller identification display information to the base (step 501); the base will check if the caller identification display information is correct (step 502); if not, terminating the method for processing the caller identification display information

(step 508); if it is correct, storing the caller identification display information in a memory of the base (step 503); checking if there is an electronic notebook coupled with the base (step 504); if there is no electronic notebook coupled with the base, terminating the method for processing the caller identification display information (step 508); if there is an electronic notebook coupled with the base, then checking if the identification display of the electronic notebook is accepted by the base (step 505); if the identification display of the electronic notebook is not accepted by the base, terminating the method for processing the caller identification display information (step 508); if the identification display of the electronic notebook is accepted by the base, transmitting the caller identification display information to the electronic notebook (step 506); then, checking if the caller identification display information is the last caller identification display information (step 507); if the caller identification display information is the last caller identification display information, terminating the method for processing the caller identification display information (step 508); if the caller identification display information is not the last caller identification display information, repeating the above-mentioned steps until the last caller identification display information is transmitted to the base; finally, terminating the method for processing the caller identification display information (step 508).

It could be noted that, in the method for processing the caller identification display information by the intelligent data communication base, the electronic notebook needs to be coupled with the base, and the identification display of the electronic notebook has to be an identification display being accepted by the base, otherwise the base will not transmit the caller identification display information to the electronic notebook. Thus, it can prevent the electronic notebook having unacceptable identification display by the base from receiving the caller identification display information in the base, so as to improve the security.

Thus, the device and method for intelligent data communication disclosed by the present invention can solve some problems occurred in the conventional device having caller identification display function: (1) solving that the device having caller identification display function not providing the function of caller identification display information backup, so that when the caller identification display information is lost, it would be regretful for not saving back; (2) solving the problem of the conventional device for receiving the caller identification display information but not implementing the automatic dialing function; (3)

solving the conventional device having caller identification display function that when transmitting caller identification display information, it will transmit the caller identification display information to any electronic notebook to achieve the security function.

- 5        The present invention has been described using preferred embodiments, which should not be construed as the limitation of claims in the present invention. Those skilled in the related art can make few changes or modification without departing from the spirit of the present invention, and those patent-protected ranges should be all included in the following claims.

10

**CLAIMS:**

1. An intelligent data communication device, the device at least includes:

a base, wherein the base includes a telephone line interface for coupling with the public telephone switching network, a first coupling device, a caller identification display processing module for processing the caller identification display information transmitted from the telephone line interface, and communicating messages with other devices coupled with the first coupling device through the first coupling device, a first memory for storing the caller identification display information after processing by the caller identification display processing module, a second memory for storing the messages sent from other devices coupled with the first coupling device through the caller identification display processing module and transmitting the messages to other devices coupled with the first coupling device, an external device interface for coupling with an external device for communicating messages with the external device;

a portable electronic notebook, which can be coupled with or separated from the base, in which the portable electronic notebook includes a second coupling device for coupling with the first coupling device of the base, a data input module, a data processing module for processing the messages sent from the data input module and communicating the messages with the base through the second coupling device, a storage device for storing the messages sent from the data processing module and transmitting messages to the second memory in the base and conducting the automatic dialing function, and a display device for displaying the messages sent from the data processing module.

2. The device according to claim 1, wherein the base includes a display device.
3. The device according to claim 1, wherein the base has the caller identification display function.
4. The device according to claim 1, wherein the portable electronic notebook at least includes a personal digital assistant or a databank processor.
5. The device according to claim 1, wherein the external device at least includes a personal digital assistant or a databank processor.

6. The device according to claim 1, wherein the data input module includes a keyboard.
7. The device according to claim 1, wherein the display device includes a liquid crystal display.
- 5 8. The device according to claim 1, wherein the caller identification display information at least includes:
  - a caller's number;
  - a caller's name;
  - a calling time; and,
  - 10 a calling date.
9. An intelligent data communication device comprising a base and a portable electronic notebook which can be coupled with or separated from the base, the device at least includes:
  - 15 a buffer, located in the base for storing the caller identification display information sent from the public telephone switching network coupled with the base;
  - a first storage device, located in the base for storing the information from the portable electronic notebook;
  - a dialing module, located in the base for automatically dialing out  
20 through the public telephone switching network;
  - a data processing module, located in the portable electronic notebook for processing the information sent from the buffer;
  - a second storage device, located in the portable electronic notebook for  
25 storing the information sent from the data processing module, and transmitting the stored information to the first storage device or receiving the stored information from the first storage device through the data processing module, and transmitting the stored information through the data processing module to the dialing module for automatically dialing out; and,
  - 30 a display device, located in the portable electronic notebook for display the information sent from the data processing module.

10. The device according to claim 9, wherein the base includes a display device.

11. The device according to claim 10, wherein the display device includes a liquid crystal display.

12. The device according to claim 9, wherein the base includes the caller  
5 identification display function.

13. The device according to claim 9, wherein the portable electronic notebook at least includes a personal digital assistant or a databank processor.

14. The device according to claim 9, wherein the caller identification display information at least includes:

- 10       a caller's number;  
         a caller's name;  
         a calling time; and,  
         a calling date.

15       15. An intelligent data communication method, the method at least includes the following steps:

         receiving the caller identification display information from the public telephone switching network coupled with the base in a buffer located in the base;

20       processing the information sent from the buffer in a data processing module of the portable electronic notebook;

         displaying the information sent from the data processing module on the display device located in the portable electronic notebook;

         storing the information sent from the data processing module in a second storage device of the portable electronic notebook;

25       transmitting the information stored in the second storage device through the data processing module to the first storage device;

         transmitting the information stored in the first storage device through the data processing module to the second storage device; and,

         transmitting the information stored in the second storage device through

the data processing module to the dialing module for automatically dialing out.

16. The method according to claim 15, wherein the portable electronic notebook at least includes a personal digital assistant (PDA) or a databank processor.

5 17. The method according to claim 15, wherein the caller identification display information at least includes:

a caller's number;

a caller's name;

a calling time; and,

10 a calling date.

18. A method of transmitting the caller identification display information for automatically establishing phone book information, the method at least includes the following steps:

15 transmitting a caller identification display information to a portable electronic notebook;

conducting a copying procedure, if it is desired to copy the caller identification display information to the phone book of the portable electronic notebook;

20 terminating the method for transmitting the caller identification display information for automatically establishing phone book information, if it is not desired to copy the caller identification display information to the phone book of the portable electronic notebook;

conducting an editing procedure, if it is desired to edit the caller identification display information;

25 terminating the method for transmitting the caller identification display information for automatically establishing phone book information, if it is not desired to edit the caller identification display information; and,

repeating the above-mentioned steps until the last caller identification display information is transmitted to the portable electronic notebook.

30 19. The method according to claim 18, wherein the portable electronic notebook

at least includes a personal digital assistant (PDA) or a databank processor.

20. The method according to claim 18, wherein the caller identification display information at least includes:

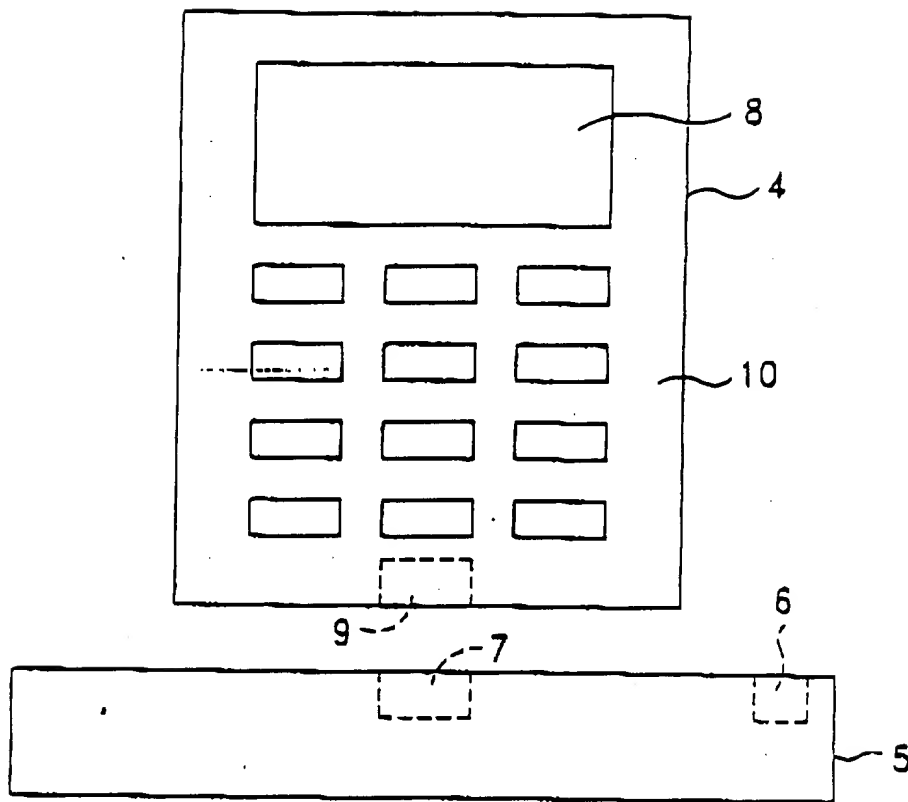
a caller's number;

5 a caller's name;

a calling time; and,

a calling date.





**FIG. 1**

FIG-2 (2560x4200x32 gif)

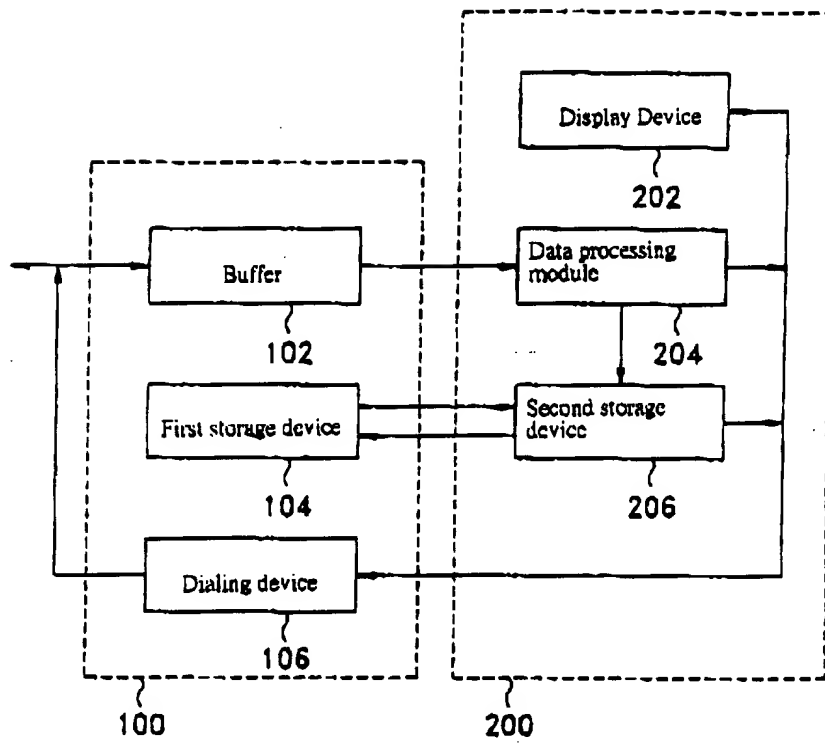


FIG. 2

FIG-3 (2550x4200x32 g/l)

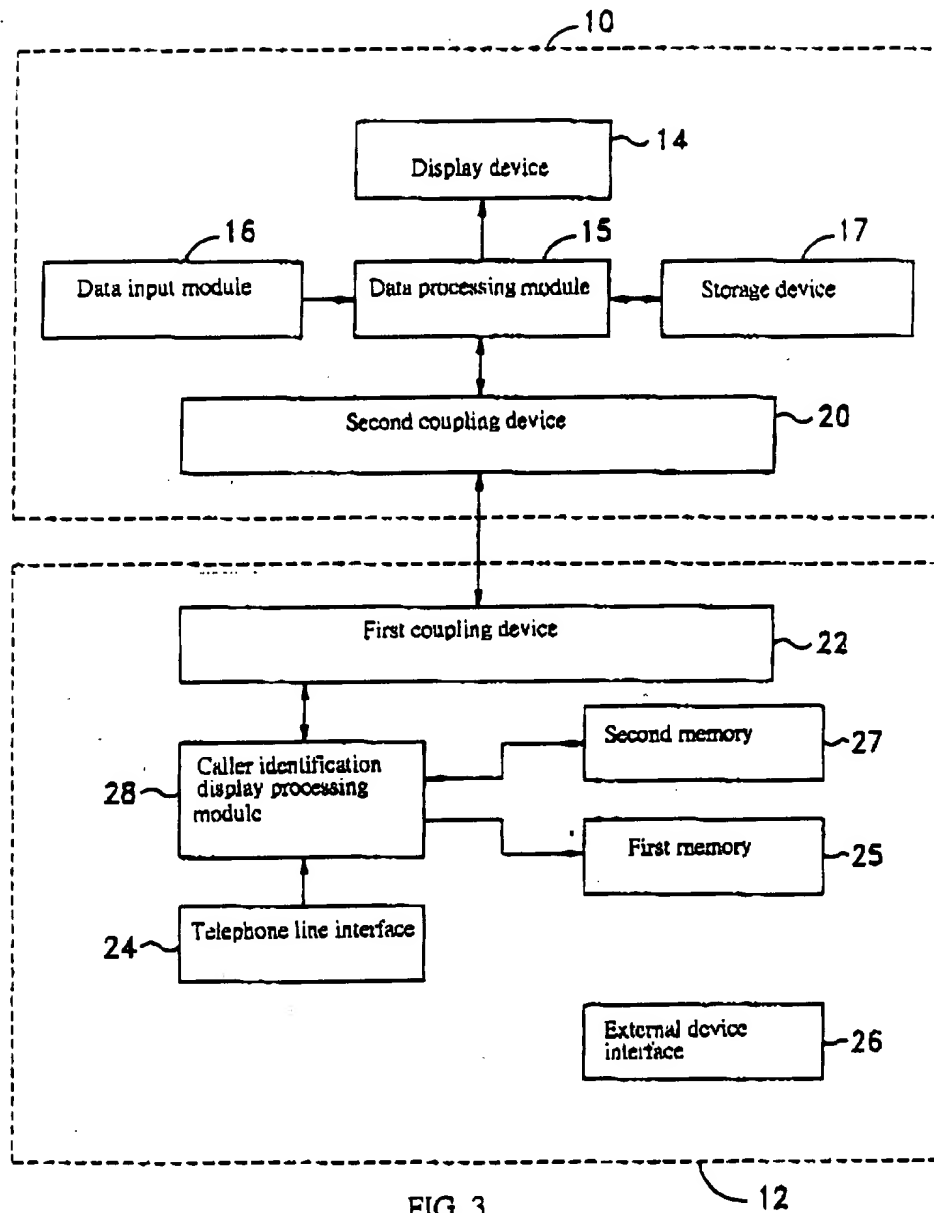


FIG. 4 (2560x4200x32 gif)

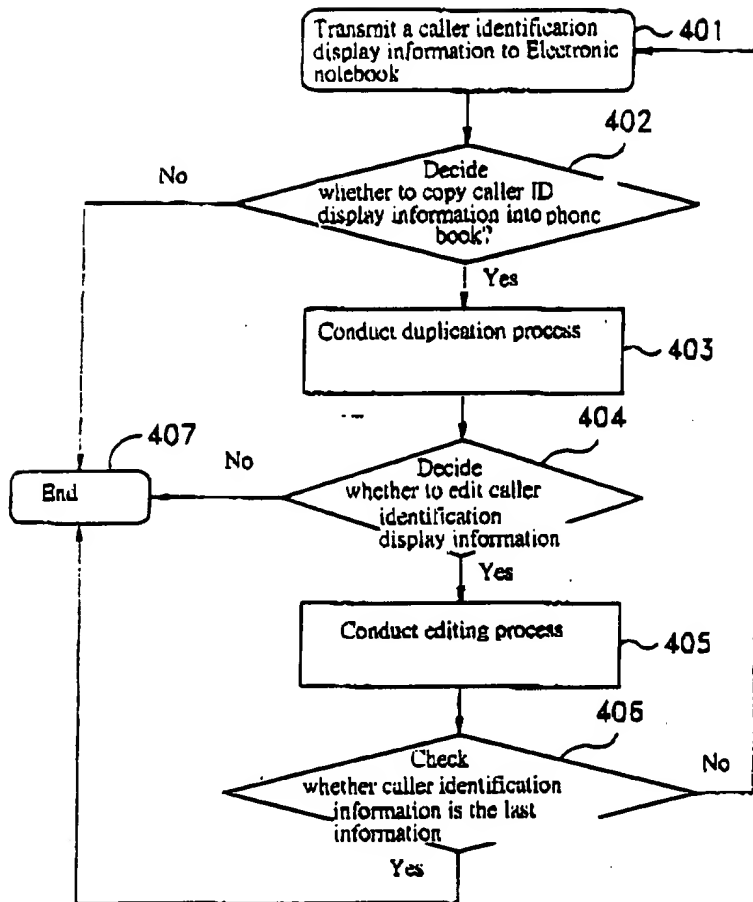


FIG. 4

FIG-5 (2550x4200x32 gif)

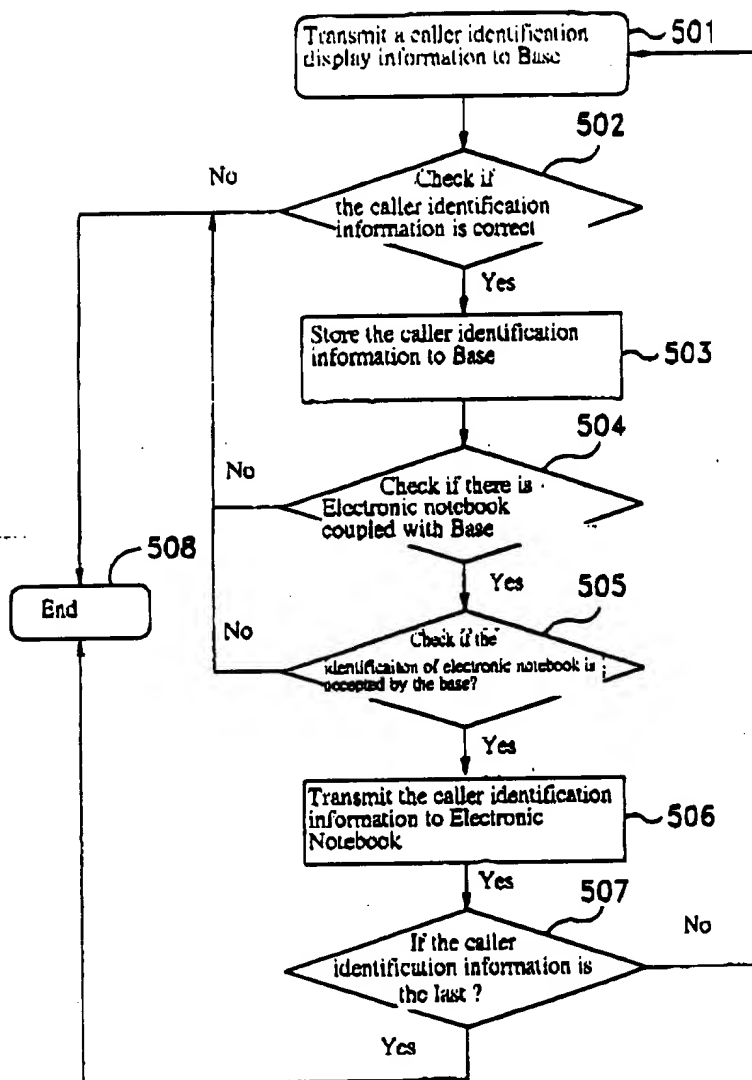


FIG. 5